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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/673,121	11/27/2000	Arild Follestad	FRD-043	9468

7590

11/20/2003

Patent Administrator
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EXAMINER

BROWN, JENNINE M

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/673,121

Applicant(s)

FOLLESTAD ET AL.

Examiner

Jennine M. Brown

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07/16/03 and 09/17/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9, 11-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "reduced" in claim 1 is a relative term, which renders the claim indefinite. The term "reduced" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Examiner has consulted the specification for clarification of the extent of the reduction of the chromium from Cr(VI) to either Cr(III) or Cr(II) but on page 4, lines 20-21, it states "reducing the oxidized chromium to obtain the main part thereof in a bivalent oxidation state" where "main part thereof" is also vague and indefinite. Again on page 6 of the specification, "when the reduction is completed, the major part of the contained chromium should preferably be in a bivalent oxidation state" and "major part" is also vague and indefinite. It is unclear whether this is a 50% conversion, 70% conversion or any variant to 100% conversion of the bivalent oxidation state.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 6-9, 11-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Lhost, et al. (US 6013595).

Lhost, et al. teach a catalytic solid preferably chromium which is inorganic or organic and in the hexavalent, trivalent or divalent state (col. 4, l. 4-19) and may be obtained by reduction of hexavalent chromium compounds (col. 4, l. 16-18) optionally with a support (col. 4, l. 19) where the support maybe chosen from metal oxides such as silicon, aluminum, titanium, zirconium, or thorium oxides (col. 4, l. 38-51). Lhost, et al. teach a metallocene compound having the formula $(Cp)_a(Cp')_bMX_xZ_z$ in which Cp and Cp' each denote an unsaturated hydrocarbon radical coordinated to the central atom M, it being possible for the groups Cp and Cp' to be linked via a covalent bridge where a, b, x and z denote the transition metal, M, which is chosen from groups IIIB, IVB, VB, VIB of the Periodic Table and X denotes halogen and Z denotes a hydrocarbon radical which may optionally comprise oxygen or a silyl radical (col. 2, l. 48 – col. 4, l. 3). The transition metal is preferably selected from zirconium (col. 3, l. 6-8). The molar ratio between the group VIB metal/transition metal is usually not more than 100, more precisely not more than 50, ratios of not more than 10 recommended, for example from

Art Unit: 1755

about 1 to 3.5 (col. 4, l. 29-37). The support has a particle size characterized by a mean diameter of at least 10 μm to 40 μm most common and typically no more than 500 μm (col. 4, l. 52-60) having a specific surface area measured by volumetric BET of at least 100 m^2/g , especially 180 m^2/g and values of at least 220 m^2/g most advantageous but not more than 650 m^2/g (col. 4, l. 52-67). The catalytic solid comprises the support in amount of at least 0.01% by weight relative to the total weight of the inorganic support and of the group VIB metal compound, preferably of at least 0.1% by weight, values of at least 0.2% by weight being the most common; the amount of support usually does not exceed 2% by weight, in particular it does not exceed 1.5% by weight, values of 1% by weight being recommended (col. 5, l. 13-21). After impregnation of the support with the group VIB metal compound, the impregnated support is advantageously activated by heating it to a temperature of 400 to 1000 $^{\circ}\text{C}$ in order to convert at least some of the metal into hexavalent metal which may optionally be reduced at least partially by a reducing agent, such as carbon monoxide or ethylene (col. 5, l. 54-60). In the second step of the process according to the invention, the incorporation of the metallocene based compound may be carried out simultaneously or separately and the ionizing agent may be added in any order (col. 6, l. 17-22).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d

Art Unit: 1755

1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-2, 6, 8-9 and 12-16 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 10 of US 6541581 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent claims polyethylene produced by the homopolymerization of ethylene or copolymerization of ethylene with alpha olefins in the presence of catalyst which comprises a chromium oxide catalyst mainly in the bivalent oxidation state combined with an inorganic support containing about 85% by weight of silica, a transition metal compound comprising at least one cyclopentadienyl ring bonded to said transition metal where the cyclopentadienyl ring is substituted or unsubstituted bonded to the transition metal by a bridge or annealed to other substituted or unsubstituted ring structures and if two cyclopentadienyl rings are present may be bonded to each other and an aluminoxane catalyst activator. It would have been obvious to one of ordinary skill in the art to specify the specific ranges for support shape, pore size and surface area because it is determined by the manufacturer and type purchased. It would have been obvious to one of ordinary skill in the art to

Art Unit: 1755

use the zirconocene and organochromium compounds at the specified temperature range and valence because applicants specification admits the reduction is conventional therefore the materials used and the temperature ranges specified would have been conventional to transform hexavalent chromium to bivalent chromium. It would have been obvious to one of ordinary skill in the art to use the molar ratios of chromium to zirconium because the loading ratio of zirconium would be influenced by the loading of chromium and the steric hindrance caused by the cyclopentadienyl complexes attached to the zirconium.

Response to Arguments

Applicant's arguments with respect to claims 1-9 and 11-16 have been considered but are moot in view of the new grounds of rejection.

According to the specification, the method for the preparation of the catalyst comprises the steps of: (a) calcining an inorganic oxide particulate support selected from the group comprising alumina, silica, titania, zirconia, magnesia and combinations thereof, (b) joining onto the surface of said support a chromium organic compound to obtain a catalyst precursor, (c) subjecting said precursor to reducing conditions to obtain a prereduced catalyst, thus (e) reducing the oxidized chromium to obtain the main part thereof in a bivalent oxidation state (f) contacting said reduced catalyst with a metallocene compound (page 4, lines 9-30).

The Lhost, et al. reference has overlapping inorganic oxide particulate supports, overlapping catalyst precursor amounts, reduction of chromium to a bivalent state and

contacting the reduced catalyst with a metallocene compound in an overlapping temperature range as well as claimed reduction agents.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennine M. Brown whose telephone number is (703) 305-0435. The examiner can normally be reached on M-F 8:00 AM - 6:00 PM; first Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell can be reached on (703) 308-3823. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

After the move to the new USPTO Headquarters in Alexandria, VA, tentatively scheduled for the week of December 22, 2003, the examiner's new phone number will be (571) 272-1364 and Mr. Bell's new phone number will be (571) 272-1362.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

jmb


Mark L. Bell
Supervisory Patent Examiner
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